

chusetts; 8, Nebraska, Iowa, Illinois, Wisconsin, Maryland, Rhode Island, Massachusetts, Canada, Cape Breton; 9, Nebraska, Indian Territory, Pennsylvania, New York, New Jersey, Long Island, Massachusetts; 10, Indiana, South Carolina, Virginia; 11, Indiana and Kingston, West Indies; 13, Louisiana; 14 Missouri, Nebraska; 15, Minnesota; 17, Massachusetts; 20, Tennessee; 21, Havana, West Indies; 23, Texas; 24, Texas, Wisconsin, Virginia; 25, Texas, Indiana, Michigan, Ohio, Canada, Pennsylvania, Virginia; 26, Minnesota, Wisconsin; 28, Missouri, Indiana, Ohio; 29, Indiana, Ohio, Pennsylvania, New York, New Hampshire.

In this series of storms the most remarkable dates are those of the 7th, 8th, 9th, 25th and 29th, on all of which days the local storms were especially prevalent over regions covered by masses of air flowing north and northeastward toward the general barometric depressions then existing in the northern sections of the country. The observer on the summit of Pike's Peak states that the local storms there experienced come from the northwest, west or southwest, and evidently originate over the central portions of the "parks" on the hot afternoons. One such storm approached his station under conditions very favorable for observation, and he noted that while the cloud-bearing currents of air flowed toward the rotating centre from all directions, they had also a decided downward movement, but through the interior funnel masses of smoke-like vapor rapidly ascended. The local storms observed at Pike's Peak belong possibly to the same class with those observed in the Gulf States and the West Indies, and which apparently originate often in the overheating of limited portions of land, rather than in the influence of the wind attending areas of low pressure. The average number of this class of storms as observed at any one station has been: In the Western Gulf States, 6; in the Central and Eastern Gulf, Florida and Key West, 15.

### III.—ATMOSPHERIC TEMPERATURE.

(1.) *In general.*—The general distribution of temperature during the month is shown by the isotherms on the accompanying map No. II, on which map, as also on map No. III, the Canadian observations have been carefully combined with those of the United States. From the table of comparative temperatures, it will appear that the month throughout the whole country has been warmer than usual. The range of temperature has been least on the Texas coast and in southern Florida, where it has amounted to about 20 degrees. It has averaged about 30 degrees from Cape May to Wood's Hole. The greatest range has been reported from Colorado and Minnesota, where it has amounted to 50 and 60 degrees. The average temperature on the summit of Mount Washington has been 42.9, or 25° below that of stations near the sea level.

The remarkable contrasts of temperature that are noticed in the winter months on the border of regions over which northerly and southerly winds respectively prevail, are represented during this month by only a single instance—that of the afternoon of the 26th of June—on which occasion a slight barometric depression appears to have been central in northeastern Pennsylvania. South and west winds were at the time prevailing, with a temperature of 90 or more over the South Atlantic and Eastern Gulf States, as also over a portion of West Virginia and Maryland. Southeasterly winds, with a temperature of 68 to 76, prevailed in the southern part of New England, and northerly winds, with a temperature of 56 to 60, prevailed in central New York.

(2.) *Frosts*.—Slight frosts have been very generally reported on the following dates: 1st, Michigan; 2d, New York, Ohio, Pennsylvania and Vermont; 10th, Iowa; 11th, Iowa; 12th, Michigan and Nebraska; 13th, Ohio; 14th, Pennsylvania and Vermont; 15th, Maryland; 16th, Maryland; 24th, Vermont; 25th, Vermont; 27th, Vermont.

#### IV.—PRECIPITATION.

(1.) *In general*.—The general distribution of rain-fall for the month will be apparent from the accompanying map No. III, from which it will be seen that a remarkable excess has been experienced in Minnesota and the adjacent country, as also in Nova Scotia and New Brunswick. The unequal distribution of the rain-fall, owing to the peculiar local nature of the storms of June, gives rise to the existence of innumerable small regions of from 10 to 100 miles in diameter over which little or no rain has fallen in comparison with that experienced in the country immediately adjoining. Besides these smaller areas, larger ones have existed, as shown on the map, in eastern Texas, southwestern Missouri, the lower Ohio valley, the Middle States, Upper Canada and the lower St. Lawrence valley, in all of which less than two inches of rain have fallen. The rain-fall in Minnesota and Nebraska is generally remarked upon as the heaviest ever known to have occurred. That on the summit of Mt. Washington (13.44inche,) exhibits as usual the great fluctuations of the climate of that spot.

(2.) *Special Droughts*.—The local droughts that have occurred during the month have been specially commented upon as threatening the future harvest in New Jersey. Some small sections of New York and Virginia, southern Ohio and Indiana, and eastern Texas.

(3.) *Special Rains*.—Among the rain-falls remarkable for their quantity that have been particularly reported during the month, have been the following: on the 8th, at Sandwich, Illinois; 9th, Plattsmouth, Nebraska; 14th, Fort Gibson, Indian Territory and Plattsmouth, Nebraska; 24th, Indianola, Texas.

(4.) *Number of cloudy days*.—The number of days wholly cloudy as reported from the Signal Service Stations was least in the eastern portion of North Carolina, in the interior of Texas and in Colorado, New Mexico and Kansas, from all of which sections but one day entirely cloudy has been reported. Less than five cloudy days are reported from the Western Gulf coast, the Ohio and lower Mississippi valleys. From five to ten days are reported from the Middle Atlantic States and Iowa. From ten to fifteen cloudy days, and occasionally more, are reported from New England, Lakes Ontario, Huron and Superior, and in Minnesota.

(5.) *Number of rainy days*.—The number of days on which some, even the slightest amount of rain fell at a given station, will, if combined with the quantity of rain that has fallen, give a general indication of the character of the individual rain-storms as to their gentleness or severity. Thus, over those portions of the country that have experienced more than six inches of rain, the average number of rainy days has been—on the Gulf coast, 10; in the Northwest, 18.

The average number of rainy days in districts over which the rain-fall has been from two to four inches, has been—in the Southwest, 6; on the Atlantic coast, 10; in the Middle Atlantic States, 11; and on the Middle Atlantic coast, 9.